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ABSTRACT

Academic collaboration among students takes place not only inside the classrooms but outside of class as well. This study investigated such out-of-class academic collaboration among Singaporean polytechnic students as they worked on assignments in which their instructors had made collaboration mandatory. Data were collected via questionnaires completed by 232 students, interviews were conducted with 10 instructors, and observations were done on 8 student groups as they collaborated on mandatory out-of-class collaborative assignments. Variables of interest included frequency of out-of-class collaboration (very frequent), how such work is assessed (usually a combination of group and individual grading), group size (most often 4 or 5), who decides on group composition (usually the students), and factors students and teachers believe contribute to successful group work (e.g., keeping focused, allocating work, and sharing ideas). Suggestions are made on how to guide students to make greater and more efficient use of group study outside of class (e.g., team-building activities and training in group skills) and to help instructors gain new ideas for organizing and facilitating out-of-class academic collaboration among their students (such as conferences with groups to help them structure their collaboration). The student questionnaire and teacher interview questions are appended. (Contains 36 references.) (KFT)

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An Exploratory Study of Teacher-Required Out-of-Class Academic Collaboration Among Students at a Singapore Polytechnic

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Abstract

Academic collaboration among students takes place not only inside classrooms but outside of class as well. This present study investigated such out-of-class academic collaboration among students at a polytechnic in Singapore as they worked on assignments on which their lecturers had required them to collaborate. Data were collected via a questionnaire completed by 232 students, interviews were conducted with ten lecturers, and observations were done of eight student groups as they collaborated on teacher-required work outside of class. Variables of interest (with findings in parentheses) included frequency of out-of-class academic collaboration (very frequent), how such work is assessed (usually a combination of group and individual grading), group size (most often 4 or 5), who decides on group composition (usually the students), and factors teachers and students believe contribute to successful groupwork (e.g., keeping focused, allocating work, and sharing ideas). Suggestions are made on how to guide students to make greater and more efficient use of group study outside class (e.g., teambuilding activities and training in group skills), and to help lecturers gain new ideas for organizing and facilitating out-of-class academic collaboration among their students (e.g., conference with groups and help them structure their collaboration).

Introduction

Student-student collaboration appears to be increasingly common in education, as it fits with trends towards such goals as learner-centred education, language as a tool to promote thinking, and knowledge construction rather than knowledge transmission. A growing body of research suggests that, when properly organized, student-student collaboration in the classroom can lead to improvements on a number of variables, including achievement, thinking skills, interethnic relations, liking for school, and self-esteem (for reviews, see Bossert, 1988-1989; Cohen, 1994; Johnson & Johnson, 1989; Sharan, 1980; Slavin, 1995).

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In the specific area of second language acquisition, theorists have proposed that student-student collaboration can represent a useful element of classroom instruction. For instance, Long and Porter (1985) suggest five ways in which group activities can foster second language acquisition: increasing the quantity of student talk; improving the quality of student talk by providing a setting for language use that is more natural than the typical teacher-fronted

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classroom activity; allowing opportunities for individualizing instruction; creating a more supportive, less anxiety-provoking setting for language use; and enhancing student motivation. However, as Pickard (1996) points out, the literature on second language instruction appears to have given little attention to out-of-class student-student collaboration.

Similarly, in the general education literature the focus has been on student-student collaboration that takes place inside classrooms. However, Bloom (1984) and Walberg (1984) state that peer interaction outside the classroom can also be crucial to academic success. In the fields of first and second language reading, it has long been noted that students who read outside class are likely to progress more rapidly than those who do not (Elley & Mangubhai (1983). Writing from the standpoint of developmental psychology, Harris (1998) claims that peers' influence on children and adolescents is stronger than that of parents.

The present study focuses on what shall henceforth be called "out-of-class academic collaboration" (OCAC). OCAC has been associated with enhanced outcomes among a wide variety of learners, e.g., disabled tertiary students (Finn 1997), non-disabled primary and secondary school students who form peer support groups with disabled students (Cushing & Kennedy 1997), and entering tertiary level students (Ignash, 1993). At the same time, students frequently take part in OCC for *non-academic* purposes, both positive and negative, e.g., sports, clubs, romance, gangs, and substance abuse.

OCAC can take place among students in at least three different contexts:

1. Institutionally-sponsored OCAC, e.g., peer tutoring programmes established by institutions where students who are more proficient in a subject area are chosen by the institution (and sometimes paid or otherwise rewarded) to tutor students weak in that subject. These programmes may be sponsored by the institution where students are studying, or by other organizations, such as religious or ethnic organizations.

2. Teacher-initiated OCAC, e.g., a teacher assigns students to work together on a homework assignment. Project work is another area in which teachers often organize students to work together outside of class.

3. Student-initiated OCAC, e.g., a group of students meet together on their own to study for an examination. George (1999), a professor from the U.S. teaching in Thailand, describes her initial chagrin when she:

> (N)oticed that my bright and diligent graduate students ... were obviously cheating: They were handing in almost identical assignments. ... The students told me they worked together more than four hours a day after class in their "homework cartel." They proudly announced their motive was to impress me in class with their studiousness and competence.

Overlap may often exist among these three types of OCAC. For example,

students who study together on their own may decide to work together again when their teacher assigns them to do group projects. This study focuses on the second type of OCAC.

Rationale for Encouraging OCAC

Student-student collaboration finds support from many learning theories, including behaviourist (Slavin, 1987), humanist (Rogers, 1979), social psychological (Deutsch, 1949), Vygotskyian (Frawley & Lantolf, 1985), Piagetian (Doise & Mugny, 1984), and cognitivist (Brown, Collins, & Duguid, 1989; Bruner, 1966). Cognitive psychologists highlight that learners, not teachers and materials, are the crucial element in the educational enterprise. The trend toward a more knowledge-based economy is often cited as a reason for focusing on the learner. Baud (1988: 4) argues that the goal of education must no longer be "knowledgeable persons" but, because our world is one "in which the half-life of a fact or a technical skill ... is shrinking year by year". Our aim, says Baud, must now be "lifelong learners". Student-student collaboration provides students many opportunities to develop the skills necessary for life-long learning (Davidson & Worsham, 1992).

Another rationale for learner-centred instruction stems from a view of education as a training ground and a practice field for democracy. As Kohn (1993:9) states, "Students should not only be trained to live in a democracy when they grow up; they should have the chance to live in one today." In collaborative groups, students can exercise some of the decision-making functions normally reserved for teachers. As students make decisions, they need to encourage everyone to be involved in making decisions if their groups decisions are to be wise ones and ones that each the support of all members.

A key implication of learner-centred theories in education takes the form of the notion of learner autonomy, which Dickinson (1999, p. 2) defines as "an attitude to learning that the learner develops in which the learner is willing and able to make the significant decisions about her learning, ..." We next turn to a consideration of the link between student-student collaboration and learner autonomy.

Collaboration toward Learner Autonomy

To better understand how collaboration can promote learner autonomy, we begin by explaining key concepts behind cooperative learning (CL), a set of approaches for promoting effective student-student collaboration. CL (Johnson & Johnson, 1994; Kagan, 1994) can be defined as concepts and techniques for enhancing student-student interaction. provides many useful ideas for implementing student-student collaboration. Two concepts central to CL are positive interdependence and individual accountability. Positive Interdependence describes the feeling among group members that they **sink** or **swim** together. If one fails, all fail; if one succeeds, everyone succeeds. Group members realize that each member's efforts benefit not only themself but all other group members as well. No one can succeed on their own. Positive interdependence provides a feeling of support within the group.

Individual accountability exists when each individual member feels responsible to learn, to demonstrate their learning, and to contribute to the learning of groupmates. In other words, no one should freeride on the efforts of others, and no one should keep others from participating. The purpose of CL is to make each member a stronger individual in their own right. The group measures success not by a particular group product but by the individual progress of each group member. Individual accountability provides a feeling of pressure within the group, which hopefully mixes well with the feeling of support offered by positive interdependence.

By way of illustration, Jigsaw (Aronson, Blaney, Stephan, Sikes, & Snapp, 1978), a well-known technique, is one of many CL techniques for promoting positive interdependence and individual accountability. [Please note the use of "promoting", not "requiring", "furnishing", "guaranteeing", or "providing", as all we teachers can do is to promote and encourage.] In Jigsaw, each group member obtains unique information that they share with their groupmates in order that group members can perform a subsequent task structured to encourage individual contributions. Thus, learners are encouraged to support each other by teaching their unique information to the rest of the group and to learn from everyone else's teaching of their piece. At the same time, they may feel pressured to learn their information well and to do a good job of teaching to and learning from their groupmates because the group is depending on them.

To summarize, the peer support generated by the feeling of positive interdependence among group members and the active participation by all encouraged by the feeling of individual accountability amongst the group provide a basis for the creation of groups that can function according to a CL motto "Team Then Teacher (TTT)", i.e., that the group relies on its own resources before turning to the teacher to help. This relative self-reliance of students groups represents a step toward greater autonomy for learners. As Geary (1998: 1) puts it, the goal is that students go "From dependence toward independence via interdependence".

Learner autonomy does not necessarily imply that students go off by themselves and study all alone (Benson, 1996; Dam, 1995; Higgs, 1988; van Lier, 1997). Indeed, in most settings, including conducting the present study, people work together (Hilt, 1992). For students to succeed at becoming more autonomous via peer collaboration, teachers need to play the role of facilitator, paying attention to notions such as positive interdependence and individual accountability, and helping students to learn the skills and strategies they need to collaborate (Johnson & Johnson, 1994). We now consider how teachers can help students succeed at teacher-required OCAC.

Teacher-required OCAC

Teacher-required OCAC can take many forms, such as group presentations, joint writing assignments, and joint data gathering. One type of teacher-required OCAC that involves these three forms are projects that teachers

assign students to do in groups. Many issues arise when teachers decide to use projects and other forms of teacher-required OCAC (Fried-Booth, 1986; Ribe & Vidal, 1993). These issues include:

1. Group composition - Which students are in which groups?
2. Group size - How many members per group?
3. Grading - Do all group members receive the same grade? What components are graded: e.g., oral presentation, written report, plans, progress reports? Who does the grading: teachers, peers, self?
4. Guidance - How does teachers help students prepare to do the project? How do teachers monitor groups' progress?
5. Number - How many projects are given to students in individual courses and for all their courses?
6. Length - How long do projects last?

Methodology

This exploratory was undertaken to gain some initial insights into how teacher-required OCAC is conducted and perceived. This section describes the setting of the study, the participants, the data collection, and the data analysis.

Setting and Participants

This study took place in Singapore, an island nation of approximately 3.5 million people. The main ethnic groups in Singapore are, in declining order of size, Chinese, Malay, and Indian. The Singapore government endeavours to promote bilingualism in a mother tongue language and English. Towards this goal, while the medium of instruction from the first year of primary school is English, students take regular courses in their mother tongue language which is an examinable subject.

Both students and faculty members at Temasek Polytechnic in Singapore took part in this study. In Singapore, primary school consists of six years, after which most students attend secondary school for four years, graduating at approximately the age of 16. One option for qualified secondary school graduates is to attend a polytechnic. These are three-year institutions. Temasek Polytechnic, with a 1999 enrolment of approximately 11,000 students, is comprised of four schools. The polytechnic has institutionally-sponsored OCAC programmes in three of these schools. They involve peer tutoring by more senior students of students in earlier years. Ethnic self-help groups conduct similar programmes. Student tutors receive recognition in their Career and Personal Development Porfolio that they take with them to job interviews to demonstrate that they are well-rounded individuals. In addition, peer assessment is a frequent but not universal practice in these two schools. Appendix 1 shows a peer assessment instrument used by the researcher in the present study who teaches in the Temasek Design School. Another relevant characteristic of the polytechnic is the policy that 30% of the curriculum be delivered via problem-based learning.

The two schools involved in the present study were the schools of Business and Design. These were chosen for convenience because one of the researchers taught in the Temasek Business School and another taught in the Temasek Design School. As members of the research team taught students at these two schools, we felt more confident that the research design would be implemented efficiently and completely in these schools.

Two hundred thirty-one students completed a questionnaire: 69 female, 162 male; 108 School of Business, 123 School of Design; 151 Year 1, 80 Year 2; 200 Chinese, 5 Indian, 20 Malay, 3 Eurasian, 3 Other. They were enrolled in language courses taught by two of the researchers. As these courses are required of all students in these schools and are not streamed according to proficiency, the participants in this study may represent a random sample of students in their faculties. From among the students who completed the questionnaire, eight groups with a total of 37 members were observed while they were working together on their teacher-required OCAC tasks. Twenty students were Year 1 and 17 were Year 2; 14 were male and 23 female; 30 were Chinese, 5 Malay, 1 Indian, and I Eurasian. Of the eight groups, five were mixed-sex, two were all-female, and one was all-male.

Ten faculty members, five from each school, were interviewed: seven female and three male. Six were Chinese and two each were Indian and Malay. These teachers were a convenience sample of those whom the researchers knew and who were available and willing to be interviewed. However, an effort was made to select teachers from a variety of departments within each school.

Data Collection and Analysis

Data were collected in four ways in order to address the research questions. First, a student questionnaire (Appendix 1) was designed, pilot tested, and rewritten several times. The questionnaire had two main parts. The first and smaller part asked for demographic data on the students. The second and larger part, consisting of nine close-ended items and two open-ended items, asked about students' experiences with and views on teacher-required OCAC. The pilot testing of the questionnaire sought to determine whether the items were clear. This was done by inviting two or three students at a time to complete a draft version of the questionnaire, sometimes silently, other times explaining what they were thinking as they completed the questionnaire. An effort was made to invite students with lower than average English proficiency to take part in the piloting.

The two members of the research team who teach at the polytechnic administered the questionnaire to their own students, walking them through each item one at a time. The questionnaire was administered in the beginning of the fourth and final seven-week term of the school year. This process took about 20 minutes. Students were told not to write their names on the questionnaire. The last page of the questionnaire asked students to volunteer to be observed working in their teacher-required OCAC group by providing their name and contact. Students were told that if they decided to volunteer,

they should tear off that page and hand it in separately.

Questionnaire items that yielded numerical data were analyzed to produce percentages. Two items were open-ended, asking students to write out their response. When students wrote more than one response to an item, only the first was coded. Data from these items were grouped into categories, and the number of responses per category was counted. Data were analysed using the SPSS statistical programme. Two of the researchers worked together to establish the level of Inter-rater agreement for this category system. After coding some items together and discussing the result, the two researchers then coded 10% of the data independently. This 10% was used to measure inter-rater agreement. Afterwards, the researcher who taught outside the polytechnic coded the remaining data.

Second, a list of interview questions for use with faculty members was developed and pilot tested (Appendix 2). This was designed to generally parallel the items on the student questionnaire. They key purpose of these questions was to gain insight into how teachers viewed and practiced teacher-required OCAC; thus a semi-structured approach was taken, allowing the interview to follow points raised by the interviewees. Interviews were done either near the end of the third term or early in the fourth term. Each interview was conducted one-on-one by the member of the research team who does not teach at the polytechnic. The interviews lasted approximately 30 minutes each, during which time the researcher took notes but did not tape record.

A third means of data collection came via observation of student groups participating in teacher-required OCAC. In the middle of the fourth term, all three members of the research team who teach worked separately to observe groups. The two polytechnic lecturers observed their own students. The goal of the observations was to gain insight into what seemed to contribute to smooth-functioning groups and what hindered group functioning. The fact that two of the researchers knew the students helped them better understand their group interaction. Observation data were collected using a simple three-column observation instrument in which at irregular intervals the observer noted the time in the left column, recorded what the group or individual members were doing at that time in the middle column, and added any commentary in the right column. Finding groups willing to be observed was not an easy task. Very few volunteered on the back page of the questionnaire. Thus, individual groups needed to be approached before permission was granted. Observations were carried out in the locations where the groups normally met. Only parts of the group sessions were observed. The average length of the observations was 30 minutes.

Immediately following the observations, the groups were interviewed by the observer as a group: the fourth form of data. The interviews focused on two questions: What can the polytechnic do to facilitate OCAC and what can teachers do to facilitate OCAC? The average length of the interviews was 10 minutes.

Results

This section presents results from the four forms of data collection used in the study.

Questionnaire

Item 1 of the questionnaire was an open-ended item asking students which place they most frequently worked together on teacher-required OCAC. Inter-rater agreement for coding the responses into categories was 100%. Table 1 presents the results for the 224 students who responded to this item. Unfortunately, about 30% of respondents ignored the instruction to be specific and merely wrote "school" or an equivalent term. Approximately, three-quarters of respondents most frequently meet with their teacher-required OCAC groups on campus rather than in off-campus locations. The polytechnic has no dormitories.

Table 1 Where Students Most Frequently Worked on Teacher-Required OCAC (frequencies and percentages)

Place	Frequency / Percentage
Library	27 (12.1)
Project room/Studio	54 (24.1)
School canteen	8 (3.6)
Benches	18 (8.0)
School (not specified)	68 (30.4)
Fastfood restaurant or cafe	11 (4.9)
Someone's home	38 (17.0)

Item 2 listed a number of types of teacher-required OCAC tasks and asked students to identify the frequency with which they did each. Results are presented in Table 2. It appears that teachers seldom required their students to work in groups to review a lecture or study for an examination. However, students might have gotten together to do this as a form of student-initiated OCAC. Only about 14% of students reported meeting often or daily in response to teachers' direction to collaborate on lesson preparation, whereas about 58% did so on projects and assignments.

Table 2 How Often Students Met for Various Types of Teacher-Required OCAC (frequencies and percentages)

	Never	Seldom (once a month or less)	Occasionally (once a week or less)	Often (several times a week)	Daily (during school days)
Review a lecture	207 (89.6)	13 (5.6)	9 (3.9)	2 (0.9)	0 (0.0)

Prepare for a lesson / tutorial	23 (10)	68 (29.6)	107 (46.5)	29 (12.6)	3 (1.3)
Work on a project/assignment	2 (0.9)	39 (17)	54 (23.5)	112 (48.7)	22 (9.6)
Revise for a coming examination	202 (87.8)	18 (7.8)	8 (3.5)	2 (0.9)	0 (0)

The average number of hours students reported working on teacher-required projects or assignments at any one time (Item 3) was 3.5 hours, with a mode of 4 hours. Item 4 asked who decided on the composition of groups for teacher-required OCAC. Approximately 58% of students reported that they, the students, always chose, 42% reported that sometimes teachers chose and other times students chose, and only 1% indicated that teachers always chose group composition. The next item (#5) asked about the criteria students used in choosing groupmates when they were allowed to do so. Students were given a number of choices and were asked to tack as many as were applicable. Table 3 shows the results. The most common criteria for choosing groupmates, in descending order, were whether the person was someone who was one of their friends, someone they had worked together successfully in the past, or a good team worker.

Table 3 Criteria Students Use for Choosing Groupmates for Teacher-Required OCAC (frequencies and percentages)

Criteria	Frequency / Percentage
I worked with successfully before	166 (71%)
From the same module / tutorial group	138 (59%)
Of the same sex	55 (24%)
From the same ethnic group	32 (14%)
From the same ECA group	4 (1.7%)
Have same ability as or higher than me	67 (28.8%)
My friends	202 (86.7)
Good team workers	139 (59.7)

As to group size (Item 6), in descending order from most to least common were: 4 (38.8%), 5 (31.5%), 6 (15.5%), 3 (11.6%), and 2 (2.6%). When asked their opinion on the number of projects given at their polytechnic (Item 7), 61% of respondents felt the number was just right, 38% felt there were too many projects, and 2% felt there were too few. A majority of respondents, 66%, felt projects were best done in groups, while 34% preferred doing projects alone (Item 8).

On Item 9, which asked about the benefits of groups, *building friendships* and *utilising strengths of members* received the highest level of agreement from the respondents, each with about 75% either strongly agreeing or agreeing,

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followed by *reducing readings* and *making projects/assignments simpler*, each with about 58%, and *better utilisation of time*, 47%. Item 9 also asked students about difficulties they encountered working in groups. On the four difficulties listed in the item, *coping with differences in personalities* elicited strong agreement or agreement from 83% of respondents, followed by *sacrifice personal needs to find common time* (78%), *discussing unrelated topics* (55%), and *inferior task solutions/product* (35%).

Item 10 listed 12 behaviours and asked students to rate them on a 5-point scale in terms of importance in ensuring that groups function successfully. Students could choose a maximum of three behaviours in each category of importance, e.g., they could rate no more than three as *most important*. Some students ignored this instruction and ticked more than three in some categories. Table 4 presents the number and percentage of students who ticked a behaviour as most important. Percentages were calculated based on 231 respondents, regardless of how many actually ticked an item. The percentages do not sum to 100, as students could tick more than one behaviour as most important. The four behaviours which the greatest number of respondents rated as most important were, in descending order, *keeping the group focused on tasks* (62%), *keeping to deadlines* (55%), *sharing ideas* (52%), and *allocating workload* (41%).

Table 4 Importance of Behaviours for Successful Teacher-Required OCAC (frequencies and percentages)

Behaviour	Most Important	Important	Neutral	Not Very Important	Least important
Keeping the group focused on tasks	144 (62.3)	65 (28.1)	17 (7.4)	4 (1.7)	1 (0.4)
Keeping to deadlines	125 (54.1)	63 (27.3)	27 (11.7)	11 (4.8)	3 (1.3)
Allocating workload	93 (40.3)	76 (32.9)	37 (16)	17 (7.4)	3 (1.3)
Arriving on time to group meetings	38 (16.5)	65 (28.1)	82 (35.5)	42 (18.2)	1 (0.4)
Having a group leader	32 (13.9)	37 (16)	62 (26.8)	53 (22.9)	43 (18.6)
Sharing ideas	120 (51.9)	82 (35.5)	23 (10)	4 (1.7)	0 (0)
Providing alternative ideas/perspectives	66 (28.6)	92 (39.8)	53 (22.9)	12 (5.2)	2 (0.9)
Asking questions to spark thinking	41 (17.7)	92 (39.8)	70 (30.3)	23 (10)	1 (0.4)
Helping others who have problems	23 (10.0)	66 (28.6)	86 (37.2)	46 (19.9)	5 (2.2)
Volunteering to take jobs no one else wants	14 (6.1)	40 (17.3)	78 (33.8)	64 (27.7)	29 (12.6)
Telling jokes to lighten the mood	11 (4.8)	31 (13.4)	48 (20.8)	94 (40.7)	44 (19)
Bringing food to group members	3 (1.3)	6 (2.6)	24 (10.4)	38 (16.5)	158 (68.4)

The final questionnaire item was open-ended. It asked: Why do you think

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some students prefer not to study/work in groups? Responses of the 186 students who completed this item were coded into seven categories. Inter-rater agreement for coding the responses into categories was 93%. The frequencies and percentages for each category are presented in Table 5. Perhaps, responses can be further grouped into one of three types. The first three reasons relate to the individual: *their personality*, *their ability at working with others*, or *their work style*. The next three implicate problems with groups: *wasting time*, *conflicts*, and *coordination problems*. The final reason concerns *deficiencies among group members*.

Table 5 Respondents' Beliefs as to Why Some Students Prefer Not to Study/Work in Groups

Reason	Frequency / Percentage
Individualistic; independent; self-centred; loners; introverts; shy; do not want to sacrifice for others; unwilling to share; unwilling to accept others' ideas	36 (19.4)
Do not know how to work with others; cannot get along with others	17 (9.1)
Work better alone; more at ease; more efficient; more free	23 (12.4)
Groups waste time; distractions; too noisy	32 (17.3)
Conflicts due to differences in ideas; personalities; work styles	28 (15.1)
Coordination problems: hard to arrange time; place; and who does what; time lost travelling to meetings	22 (11.9)
Deficient group members; cannot be trusted; come late; freeload; bring down grades	28 (15.1)

Teacher interviews

Ten polytechnic faculty members were interviewed about teacher-required OCAC. All reported giving their students group projects to do, and about half said they assigned students to work together on smaller assignments and about half also stated that they occasionally required students to collaborate on tutorial preparation. One area of near uniformity among the teachers involved who decided on group composition, with all but one allowing students to choose their own groupmates. One interviewee reported having tried assigning students to groups but found these groups to not work together well. The one teacher who did dictate group composition used a random system. This may be seen as fairer by students and encourage them to feel that they can work with anyone (Johnson & Johnson, 1994). Two of the teachers who let students decide were not totally hands off. One reported intervening if students have formed groups that the teacher thinks will not work. The other has students choose first. This usually results in them grouping with their friends. Then, students are asked to complete a personality profile instrument, after which they are to reform in order to achieve groups with a greater balance of personalities. This was reported to result in a good deal of regrouping with students who previously were "leftovers" able to find appropriate groups.

While students usually chose who would be in their groups, nine of the ten

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teachers reported that it was they, the teachers, who chose the group size. However, the size chosen by the teachers varied substantially, depending in part on the nature of the task groups were undertaking. Sizes from 2-8 were reported, with 4-5 being about average. Some worried that 2 or 3 might be to few for the work and to generate sufficient ideas, whereas others reported avoiding groups beyond 4-5 for fear of some members being left out of discussion and work or trying to leave themselves out.

All except one of the teachers reported believing that work was usually better done in groups than alone. Advantages seen for groups included students:

a. learn how to work together, learn tolerance
b. provide each other with both peer support and peer pressure,
c. learn by teaching each other,
d. clarify content,
e. prepare themselves for final year projects in which they work with people in industry and represent the polytechnic to the outside world,
f. develop better solutions,
g. turn in less work, thus saving time for teachers,
h. combine skills and ideas,
i. become more verbal in whole class activities after having spoken in their groups,
j. receive feedback and may pay more attention and be more willing to accept peer feedback.

Despite supporting the use of OCAC, the teachers noted a number of disadvantages or potential problems, including:

a. personality clashes,
b. slower and faster students not mixing well,
c. stigma of working with students who are repeating a year at the polytechnic,
d. assessment of group products,
e. freeloading and student reluctance to complain about it,
f. lack of opportunity to develop the confidence and independent thinking that can result from working alone,
g. difficulty in finding meeting times and in apportioning the work,
h. lack of training for teachers in how to facilitate groups,
i. doing only one part of a project closes off learning opportunities
j. coordination can be problematic when students have a few projects going on at the same time, each with different groupmates.

The next area of the teacher interview asked about how teachers prepared students for their OCAC. This discussion focused on projects, as these were the most time-consuming and complicated form of OCAC. Of the ten teachers, eight wanted students to have a group leader, and seven asked groups to assign other roles to group members. These could be general roles that could be found in any group, such as *secretary* and *spokesperson*, or roles specific to the particular task, such as *photographer* or *document formatter*. One reason for wanting groups to have leaders was to facilitate

contact between the group and the teacher. Only two of the teachers reported requiring students to set up a schedule for group meetings, and only three stated that they asked students to find out areas of the project that were of particular interest to individual group members. Two of the teachers prepared students for OCAC by using games to teach group dynamics, e.g., keeping a beach ball in the air, and by teaching collaborative skills, e.g., maintaining eye contact when discussing. Another attempt to build an overall collaborative atmosphere among students on the course by bringing them together for lunches and dinners or for outings.

Once a group task was underway, teachers reporting using a number of means of helping groups along. They encouraged student to see them with problems, either in groups or individually, although a wide variance seemed to exist on how often students took them up on this offer. More than half the teachers reported asking students for some kind of progress report. One teacher used class time for students to work in their groups, including discussing group functioning using a Team Profile Analysis and updating the teacher on their progress. Another teacher described asking each student to keep an individual design management file that included journal entries, meetings with lecturers, and a time line for individual project progress. This file contributed to the student's grade and was examined at various checkpoints while the projects were in progress. While that teacher had students keep individual journals, another reportedly required group journals.

As to grading, only two of the ten teachers said that they gave all group members the same grade. Most reported using some type of combination of individual and group grade. A common way of blending individual and group grades was to give the whole group the same grade for the written product and to grade each student individually on their oral presentation. Another teacher described how 10% of students' course grade was for 'studentship', part of which includes working well in groups. Another type of combination grading involved peer assessment. Among the five teachers who reported using peer assessment, its weightage ranged from a high of 20% to it being used only in the rare case in which peers indicated a group member had done a particularly poor job.

When asked at the end of the interviews if they had any suggestions for improving teacher-required OCAC at their polytechnic, the teachers offered a number of suggestions:

a. provide for out-of-school group experiences to build solidarity, e.g., Outward Bound and overseas educational trips.

b. provide more on-campus facilities for students to meet and extend the opening hours of these facilities, perhaps even to 24 hours.

c. reduce students' workload by combining projects across courses, as was already being done in some cases.

d. more contact is need between teachers and students to facilitate project

success.

e. more teambuilding activities in non-content courses, so that content teachers would not have to deal with this, e.g., one of the teachers had been teaching a course "Career and Personal Development", that seemed to have had a good effect of students' group interaction.

f. encourage students to rotate roles in groups more often so that students become more multi-skilled.

g. put more effort into helping students appreciate the value of collaboration in their future careers and elsewhere in life.

Observations and Student Interviews

Several points stood out in reviewing the observations of the student groups as they engaged in teacher-required OCAC. A mix of personalities in a group seemed to help it function better. For instance, one group of business students all had fairly quiet personalities. They were friends and said that they had decided to work together because they got along well. Unfortunately, this uniformity and harmony seemed to lead to little discussion and no conflict in this group. In contrast, in some groups, differences in personalities seemed to result in more discussion. For example, one group of design students appeared to have two extroverts and two introverts. The extroverts led the group discussion, speaking most of the time, but the introverts contributed with questions that pushed the discussion forward. Another way that mixing seemed to benefit group functioning was mixing of the females and males, as mixed-sex groups appeared to engage in more challenging discussions and, as a result, to develop better ideas.

Only two of the eight groups had an official leader, and in those two cases that person did not play the type of roles normally associated with a leader, e.g., chairing the discussion. However, groups did have other roles. These depended on the nature of the project. Roles were sometimes distributed based on skills, e.g., in one group the member who was best at photography took all the photos or the person who was seen as having the best command of written English was given the proofreader role. Some roles rotated, e.g., one group rotated the roles of *researcher*, *note-taker*, and *typist* or *collator* of the various written parts of the project.

One way that groups attempted to create a friendly atmosphere was by having food and drink at their sessions, either by bringing it with them or by holding their sessions at food outlets. Other observed means of creating this friendly atmosphere were playful kidding on non-task matters or to push each other to complete assigned tasks properly, and a limited amount of chat about non-task matters. In other words, functioning well did not mean being serious all the time or always being on task.

Of all the groups that were observed, the one that seemed to function the worst was one composed of students who were left over after groups had

formed. The group members appeared to lack collaborative skills. The observer noticed that information transmission rather than discussion dominated. In this group, the members had divided the work with each member doing their own part and coming together only to report to each other. In other not very smooth-functioning groups, disagreement did occur, but the discussion was acrimonious, and decisions were made not by consensus, but by one side finally giving in to the other. In more successful groups, a good deal of discussion, rather than argument, took place, with students calling on their peers to explain why they had done something in a particular way and challenging them to improve their work had done. Members appeared to see the whole project as their own, regardless of who had primary responsibility for a particular part. Perhaps, the friendly atmosphere in these better functioning groups gave students confidence that they could challenge each other without groupmates taking offence and kept disagreement from descending into argument.

After each observation, students were interviewed in their groups to explore their views on what their institution and teachers could do to make OCAC more successful. As to the polytechnic's role, frequent suggestions were to provide more and better facilities, such as project rooms with scanners, computers, and plug in points for lap top computers; extend the opening hours for school facilities; and hold workshops for students on how to work in groups. This last point was seen as important because some students reported having little experience with group and project work earlier in the polytechnic careers. Frequents suggestions from the interviewees as to what teachers could do to promote OCAC were:

1. monitoring group members' progress in order to help deal with freeloaders;
1. have consequences for students who are not good group members;
2. teach group skills in class; and
3. provide guidance on how to go about doing the task, e.g., what group roles should be used and how the work should be divided.

Discussion

This exploratory study was undertaken to provide initial insights into how teacher-required OCAC is organized and carried out by the two principal sets of actors in this drama, students and teachers, and how both sets of actors view teacher-required OCAC. The researchers looked at many issues in this area which could have constituted a study in and of itself, e.g., evaluation of the OCAC and the composition of OCAC groups. Indeed, we hope that there will be further research of some of these more specific issues and hopefully there will as well. Four means of data collection were employed in the present study: student questionnaire, teacher interview, observation of groups, and student interview. Other possible sources of data include: student and teacher diary entries; audio- or videotaping of OCAC sessions; collection of teacher handouts connected with teacher-required OCAC assignments; and comparing the process of OCAC groups with the products on the

collaboration.

The generalizability of this study is limited to the two schools of the polytechnic in Singapore at which data were collected and to the 1998-1999 academic year in which the collection was done. The fact that questionnaire data were collected in courses taught by language lecturers rather than by lectures from the students' schools may have slanted students' perceptions of the study. Also, despite the fact that students were talked through the questionnaire by one of the researchers, some did not complete it properly. Other weaknesses of the study were that the teachers who were interviewed and the students who were observed and later interviewed constituted convenience samples, i.e., those who were most readily available and willing to participate in the study, rather than a random sample.

Overall, both the students and the teachers in the present study saw value in [illegible] CSAC. Using it in education in general in Singapore, including the primary, secondary, and tertiary levels, the form it takes [illegible] CSAC, i.e., [illegible] is becoming more common. Reasons for [illegible] in Singapore [illegible] the use of computers. These [illegible] tools, data tools, and tools for [illegible] tools.

1. Links to the world beyond the classroom, as students, by more [illegible] websites, can write letters to [illegible] students, [illegible] classroom to the collection and dissemination of findings.

2. Student appreciation of the project, as students often have a voice in topic selection and project planning, may result in heightened interest, motivation.

3. Learner independence may increase, as the teacher acts as guide on the side.

4. Collaborative skills can be practiced and their value appreciated.

5. Information search skills and thinking skills, such as analysis and synthesis, become necessary.

6. Opportunities to integrate diverse areas of the curriculum, e.g., a project on the environment can involve science, mathematics, social studies, and language.

Both the students and the teachers suggest the complicated nature of CSAC. For instance, both constituencies felt that students need more preparation on how to work in groups. Indeed, the use of groups in or out of the classroom introduces a host of new variables to the education equation. No longer can educators confine their attention to the interaction between student and teacher and between student and learning materials. Now, the promising but problematic paradigm of student-student interaction opens with all its perilous pitfalls, such as students spending their time arguing or students talking about something completely removed from their work, and its

powerful potentials, such as students challenging each other to progress and providing each other with accessible models of scholarship. The Box is open; it's too late to close it.

To deal with consequences of student-student interaction, educators would be wise to turn to the cooperative learning literature for the many ideas it offers on how to promote positive interdependence and individual accountability, as well as other key concepts underlying successful student collaboration. Further, educators need to share with each other, and with their students, about how they are doing OCAC and why they are doing it that way. The present researchers hope that this study has made a small contribution to that conversation.

References

Aronson, E., Blaney, N., Stephan, C., Sikes, J., & Snapp, M. (1978). The jigsaw classroom. Beverly Hills, CA: Sage.

Beck, S. (1996). Varying research activities. In S. Beck (ed.), Developing student autonomy in learning (2nd ed.) (pp. 11-18). London: Kogan Page.

Benson, P. (1996). Concepts of autonomy in language learning. In R. Pemberton, S.S.L. Li, W.W.F. Or, and H.D. Pierson (Eds.), Taking control: Autonomy in language learning (pp. 27-34). Hong Kong: Hong Kong University Press.

Bloom, B. S. (1984). The search for methods of group instruction as effective as one-to-one tutoring. Educational Leadership, 41(8), 4-17.

Bossert, S.T. (1988-1989). Cooperative activities in the classroom. Review of Research in Education, 15, 225-252.

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. Educational Researcher, 18, 32-42.

Bruner, J. (1966). Toward a theory of instruction. New York: Norton.

Cohen, E.G. 1994. Restructuring the classroom: Conditions for productive small groups. Review of Educational Research, 64, 1-35.

Cushing, L. S. & Kennedy, C. H. (1997). Academic effects of providing peer support in general education classrooms on students without disabilities. *Journal of Applied Behavior Analysis, 30(1),* 139-51.

Dam, L. (1995). *Learner autonomy 3: From theory to classroom practice.* Dublin: Authentik.

Davidson, N. & Worsham, T. (Eds.). (1992). *Enhancing thinking through cooperative learning.* New York: Teachers College Press.

Deutsch, M. (1949). A theory of cooperation and competition. *Human Relations, 2,* 129-152.

[illegible]

Dole, N. & Nagy, S. (1994). *The moral development handbook.* New York: Peggasus.

Finn, A. A. (1992). Critical support services for college students with learning disabilities. ERIC Document Reproduction Service, No. ED 412 712.

Frawley, W., & Lantolf, J. P. (1985). Second language discourse: A Vygotskian perspective. *Applied Linguistics, 5,* 19-44.

Fried-Booth, D. L. (1986). *Project work.* Oxford: Oxford University Press.

Geary, M. T. (1988, April). *From dependence toward independence via interdependence.* Paper presented at the annual meeting of the American Educational Research Association, San Diego.

George, P. G. (1995). Using cooperative learning in the college classroom. *Thought & Action, 10(1),* 93-96.

Harris, J. R. (1998). *The nurture assumption: Why children turn out the way they do.* New York: The Free Press.

ERIC Document Reproduction Service Number ED 383 677.

Higgs, J. (1988). Planning learning experiences to promote autonomous learning. In D. Baud Ed.), *Developing student autonomy in learning* (2nd ed.) (pp. 40-58). London: Kogan Page.

Hilt, P. (1992). The world-of-work connection. In N. Davidson and T. Worsham (Eds.), *Enhancing thinking through cooperative learning* (pp. 251-265). New York: Teachers College Press.

Ignash, J. M. (1993). *Challenging the "Revolving Door Syndrome".* ERIC Document Reproduction Service Number ED 361 057.

Johnson, D. W., & Johnson, R. T. (1989). *Cooperation and competition: Theory and research.* Edina, MN: Interaction Book Company.

Johnson, D. W., & Johnson, R. T. (1994). *Learning together and alone* (4th ed.). Boston: Allyn & Bacon.

Kagan, S. (1994). Cooperative learning. San Clemente, CA: Kagan Cooperative Learning.

Kenny, B. (1993). For more autonomy. *System, 21*, 431-442.

Kohn, A. 1993. Choices for children--Why and how to let students decide. *Phi Delta Kappan, 75*(1), 8-19.

Macaro, E. 1997. Target language, collaborative learning and autonomy. Clevedon, Avon: Multilingual Matters.

Ribe, R., & Vidal, N. (1993). *Project work: Step by step.* Oxford: Heinemann.

Rogers, C. (1979). *Freedom to learn: A view of what education might become* (Rev. ed.). Columbus, OH: Merrill.

Sharan, S. (1980). Cooperative learning in small groups: Recent methods and

effects on achievement, attitudes and ethnic relations. *Review of Educational Research, 50,* 241-271.

Slavin, R. E. (1987). Cooperative learning: Where behavioral and humanistic approaches to classroom motivation meet. *Elementary School Journal, 88,* 29-37.

Slavin, R. E. (1995). *Cooperative learning: Theory, research, and practice* (2nd ed.). Boston, MA: Allyn and Bacon.

van Lier, L. (1996). *Interaction in the language curriculum: Awareness, autonomy & authenticity.* London: Longman.

Walberg, H. J. (1984). Improving the productivity of America's schools. *Educational Leadership, 41*(8), 19-27.

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Appendix 1

STUDENTS' COLLABORATIVE OUT-OF-CLASS STUDY HABITS
Questionnaire

We are a group of lecturers from Temasek Polytechnic and the Regional Language Centre (RELC) who are conducting a study about student collaboration, i.e. the way students study together outside their classes for academic purposes.

PLEASE DO NOT WRITE YOUR NAME ON THIS QUESTIONNAIRE. You can be assured that all information you provide will remain strictly confidential. Your answers will in no way affect your grades or standing in class. We would appreciate your responding to the questions below honestly and completely.

Please go through the questions quickly and answer spontaneously, i.e., put down what comes to your mind first after reading the question – that is the most accurate answer.

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Background Data

Sex: ( ) Female ( ) Male
School: ( ) Business ( ) Design
Year: ( ) 1 ( ) 2
Ethnic Group: ( ) Chinese ( ) Indian ( ) Malay
( ) Eurasian Others (Please specify) _____

Study Habits

Please note that in this questionnaire we are interested in the following situation:

- **Teacher-required collaboration**, i.e., your teacher requires you to work with a group outside of class.

1. When you study/work together with other students outside of class, **where do you usually meet**

_____

2. What is the **frequency** with which your teacher requires you to work together with other students to do the following?

Table 1: Teacher-required collaboration

	Never	Seldom (once a month or less)	Occasionally (once a week or less)	Often (several times a week)	Daily (during school days)
Review a lecture					
Prepare for a lesson / tutorial					
Work on a project/assignment					
Revise for a coming examination					
Other (please specify):					

3. How long do you usually study in a group **at any one time** when working on a teacher required project / assignment ?

_____ hours

4. Who chooses the members in your group?

( ) Always your teacher
( ) Sometimes your teacher chooses, sometimes the students choose their own group members
( ) Students always choose their own group members

5. When you choose your own group members, **who** do you study together with outside of class? (Tick as many as applicable.)

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( ) Usually people I worked with successfully before
( ) Usually students from the same module / tutorial group
( ) Usually students of the same sex
( ) Usually students from the same ethnic group
( ) Usually students from the same ECA group
( ) Usually students who have same ability as or higher than me
( ) Usually students who are my friends
( ) Usually people who are good team workers
( ) Others: (Please specify.)_____

6. What is the most common **size** of the group (including yourself). Tick one only
( ) two
( ) three
( ) four
( ) five
( ) six
( ) more than six

7. At Temasek Polytechnic, the number or group projects is :
( ) too many
( ) just right
( ) too few

8. It is better to do projects
( ) in groups
( ) alone

9. **Tick the number that best indicates your agreement or disagreement with the statements below.**

Working in groups usually results in:	**Strongly Agree**				**Strongly Disagree**
	1	2	3	4	5
Making project/assignment tasks simpler					
Reducing readings					
Utilising strengths of members					
Better utilisation of time					
Building of friendships					
Discussing unrelated topics					
Having to sacrifice personal needs to find a common time					
Having to cope with differences in personalities					
Inferior task solutions/product					
Others, please specify:					

10. Based on your past experience working in groups, rate how important are the following behaviours in ensuring that groups function successfully. (1 for most important and 5 for least important). Do not put more than 3 ticks for any one rating/number.

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Behaviours	Most Important 1	2	3	4	Least Important 5
Keeping the group focused on the task					
Sharing ideas					
Asking questions to spark thinking					
Providing alternative ideas/perspective					
Keeping to deadlines					
Helping others who have problems					
Volunteering to take on jobs no one else wants					
Having a group leader					
Arriving on time to group meetings					
Allocating/dividing workload among members					
Telling jokes to lighten the mood					
Bringing food to group meetings					

11. Why do you think some students prefer not to study/work in groups?

Thank you very much for helping us in this important research.
We appreciate your cooperation and time.

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As part of this study, we would like the opportunity to observe students while they are studying together. If you would be willing to be observed, please provide us the following information:

Name: _____

Contact Number: _____

Email Address: _____

Appendix 2 - Teacher Interview Questions

1. Date:

2. Sex:

3. School:

4. Diploma:

5. Subject(s):

6. Level Teaching:

7. Do you require your students to do any out-of-class academic collaboration (OCAC)? If so, what kind?

a. Projects:
b. Assignments:
c. Tutorials:

8. Group assignment:

a. Who decides which students are in which groups?
b. What criteria are used?

9. Group size

a. Who decides the size of the group?
b. What size is typical?

10. In your opinion, is it better for student to do projects alone or in groups?

11. Advantages of groups

12. Disadvantages of groups

13. Before students begin working in groups, do you do any of the following to prepare students to work successfully in their groups?

a. ask groups to appoint leaders
b. make the groups set schedules for group meetings
c. get the groups to find out areas in the given task that interest particular members
a. assign responsibilities for each member
a. others

14. Once the groups are underway, do you do any of the following to help them work successfully?

a. encourage groups to see you with problems
b. monitor the progress of the groups – if so, how?

15. When rating the product of group work do you look for the following, and if so, what is the rough weightage given to each?

a. format
b. content
c. use of theories taught
d. presentation

16. When marking the product of group work, which of the following do you find the groups to be usually strong in?

a. format
b. content
c. use of theories taught
a. presentation

17. When grading group projects, does each member get the same grade?

18. Do you use peer assessment?

19. Do you give marks for process, e.g., progress reports?

20. Other comments: